REMARKS

Amendments to the Specification

Applicant has amended paragraphs 11 and 37 of the specification to add the word "a" before "higher degree of freedom" in accordance with Examiners suggestions. These corrections are purely typographical in nature, and do not affect or change the disclosed subject matter. No new matter is introduced through these amendments.

Response to Claim Objections

Regarding claims 9-11, applicant has amended minor informalities in these claims to correct typographical errors. Amendments were done in full accordance to Examiner suggestions, mainly the use of "switching" instead of "switch" in claim 9, and the use of the phrase "length" to describe a period or pulse, were corrected. Where appropriate, the term "length" was replaced with "duration" to more accurately reference a specific time interval. Applicant asserts that the above amendments were solely typographical in nature and do not alter the disclosed subject matter. All amendments are supported by the current specification, with no new subject matter introduced. Reconsideration for the allowance of claims 9-11 is respectfully requested.

Response to Claim Rejections

Claims 1 and 14-18 are rejected under 35 U.S.C 102(b) as being anticipated by Iwasa et al., US Patent 5,327,411 (herein referred to as Iwasa)

Regarding claim 1, applicant asserts that Iwasa does not teach a memory storing a plurality of sets of write strategy parameters. Examiner has identified the counter 57 of Iwasa as the memory element, stating "the counter of element 57 is used as a memory, the output of which chooses the path of the pulse, or the write strategy parameters to be used from the various choices". Examiner has drawn support from Col 17 line 59 – Col 18 line 2 of Iwasa for the above assertions.

Applicant insists that the Examiners reference above contradicts the assertion of the counter 57 being a "memory storing a plurality of sets of write strategy parameters" as disclosed in claim 1 of the present invention. The Examiner, with reference to counter 57 has stated "the output of which chooses...the write strategy parameters". Verification of Fig 15 will reveal however that the output of counter 57 does not feedback in any way to counter 57, but is rather sent to other components external to the counter 57. Therefore, the "write strategy parameters to be used" must be contained in an element external to counter 57, but still coupled to the output of counter 57 in order to be selected. Applicant asserts that Iwasa does not teach counter 57 for being a "memory storing a plurality of sets of write strategy parameters", because the output of counter 57 rather used to select the write strategy parameter in an element external to counter 57. Additionally, applicant asserts that counter 57 of Isawa does not store "a plurality of sets of write strategy parameters" as Isawa teaches the "counter 57 for counting the space length" (Col 17 lines 38-39).

Also regarding claim 1, applicant asserts that Iwasa does not teach "choosing a set of write strategy parameters from the plurality of sets of write strategy parameters stored in the memory according to waveform lengths of the previous(emphasis added) land section, the current pit section, and the next land section". Examiner has provided Col 5 lines 3-8 as a reference, which states "controlling a length and/or amplitude of each of the pulse trains in accordance with a length of the space signal part immediately before the mark signal part". Therefore, applicant asserts that Iwasa only teaches utilizing a previous land

section to choose a set of write strategy parameters. This is in contrast to the teachings of the present invention, which utilize waveform lengths of the current pit section, and the previous and next land sections.

In view of the contrast in teachings between Isawa and the present invention as described above, applicant respectfully requests reconsideration for claim 1.

Regarding claims 14, 16, applicant points out that these claims are dependant upon claim 1. Should an allowance be made for claim 1 in view of the above remarks, applicant asserts that claims 14 and 16 should be found allowable as being dependant on claim 1.

Similarly, claim 15 is dependant upon claim 14, and claims 17-18 are dependant upon claim 16. Should allowances be made for the respective intervening claims above, applicant asserts that dependant claims be found allowable as well.

Claim 2 and 11 are rejected under 35 U.S.C 103(a) as being unpatentable over Iwasa in view of Ogawa et al. (US Patent 2003/0142606), Ogawa herein after

Regarding claim 2, applicant asserts that Ogawa does not teach "setting the write time waveform to an erase power state before the optical storage device writes data" as disclosed in the limitation for claim 2. Ogawa teaches "the erase portions...are appropriately used according to the length of the spaces" [0055], wherein the Examiner has identified the previous write section land of the RLL waveform as the "space" during remarks for claim 1. Fig 1.B of Ogawa verifies this through an exemplary recording waveform, with corresponding erase portions (E1, E2, E3) following recording portions (R1, R2, R3). Therefore, Ogawa teaches in paragraph [0055] and Fig.1B having the erase portions following corresponding write portions, contradicting the limitation disclosed in claim 2 of the present invention. Additionally, the Examiners disclosed reference of paragraphs [0049-0053] of Ogawa do not explicitly provide support in teaching the above limitation.

Because Ogawa does not teach "setting the write time waveform to an erase power state before the optical storage device writes data", applicant asserts that it is not obvious to combine the teachings of Ogawa and Iwasa to arrive at the limitation as disclosed for claim 2 of the present invention. In view of the above rationale, applicant respectfully requests reconsideration for the allowance of claim 2.

Regarding claim 11, applicant points out claim 11 is dependant upon claim 2 Should an allowance be made for claim 2 above, applicant asserts that claim 11 should be found allowable as being dependant on claim 2.

Claim 3 is rejected under 35 U.S.C 103(a) as being unpatentable over Iwasa in view of Ogawa, and in further view of Furumiya et al (US 6,791,926), (Furumiya herein)

Regarding claim 3, applicant asserts that Furumiya does not teach "each second parameter representing a delay from a trailing edge of the first pulse of the write time transform to a leading edge of the next pulse from the first pulse". Examiner has suggested that the "amount given on the right in the middle of each block in figure 3" as equivalent to the second parameter as disclosed in claim 3. Applicant points out that the waveform labeled " recording pulse" at the bottom of each cell of figure 3 of Furumiya represents the write time transform relevant to the current claim. Careful examination of each cell in figure 3 of Furumiya will reveal an absence of a next pulse following the trailing edge of the first pulse in the recording pulse waveform. The "amount given on the right" of each recording pulse, as suggested by the examiner, more precisely indicates a delay from a trailing edge of a last pulse in a series of pulses in the recording pulse, to a next trailing edge of the recording pattern (hence referring two different waveforms). This is in contrast with claim 3 and Fig. 3 of the present invention, where the second parameter (labeled β_1) clearly shows a delay from the trailing edge of the first pulse of the write time waveform, to the leading edge of the next pulse in the same waveform. Additionally, Examiner has provided Col 7 lines 33-42 of Furumiya as a reference, however, this section does not at all discuss Fig .3, including a concise definition of the delayed amounts highlighted by the Examiner.

Additionally, Furumiya does not teach "choosing a first parameter from the plurality of first parameters according to waveform lengths of the previous land section and/or the current pit section; and choosing a second parameter from the plurality of second parameters according to waveform lengths of the previous land section and/or the current pit section" as disclosed in claim 3. The Examiner has provided Col 7 lines 52-54 of Furumiya as a reference to this limitation, which reads "Fig. 3 shows the relationship between recording pulses and the marks and spaces formed on disc based on these

values". Applicant points out that Fig. 3 of Furumiya merely graphically defines certain parameters of the recording waveform, and does not teach selection of a first parameter and a second parameter according to waveform lengths of the previous land section and/or the current pit section.

In summary, applicant asserts that it is not obvious to combine the teachings of Ogawa and Iwasa, in view of the teachings of Furumiya, to arrive at the limitation as disclosed for claim 3 of the present invention. This is because Furumiya does not teach a "second parameter representing a delay from a trailing edge of the first pulse of the write time transform to a leading edge of the next pulse", which only requires referencing of the same write time transform waveform. Furumiya alternatively teaches a delay from the trailing edge of the recording pulse (write time transform) to the leading edge of the recording pattern, which requires referencing of two different waveforms. For at least the above mentioned reasons, applicant respectfully requests reconsideration for the allowance of claim 3.

Claims 4-5 are rejected under 35 U.S.C 103(a) as being unpatentable over Iwasa in view of Ogawa, and Furumiya, as applied to claim 3 above, and in further view of Shoji et al (US 6,233,211) (Shoji herein after)

Regarding claim 4, Examiner has suggested that Fig 5 of Shoji teaches "a trailing edge of the first pulse of the write time transform is in alignment with a position of a leading edge of the current pit section", as disclosed in the limitation of claim 4. Applicant disagrees with the above, as careful inspection of Fig 5 of Shoji more accurately teaches a trailing edge of the first pulse of the reproduction signal in alignment with a position of a trailing edge of the current mark (pit section).

Regarding claim 5, applicant points out that Shoji does not teach "a length of the first pulse of the write time waveform is equal to a length of twice the base period subtracting the chosen first parameter" as disclosed in the limitation for claim 5. The Examiner has provided a reference of Fig 20 of Shoji, suggesting a chosen first parameter of 0.5T as illustrated in the trailing edge of the recording waveform. Shoji additionally teaches the length of the first pulse of the write waveform as 1.5T from Fig. 20.

Applicant points out, however, that the chosen first parameter of Shoji is not 0.5T as suggested by the Examiner. The limitation in claim 3 of the present invention defines the first parameter as "representing a delay from a leading edge of the current pit section to a leading edge of a first pulse of a write time waveform". Therefore, the period labeled "TF" given to the left of the first pulse of the write time waveform must be the chosen first parameter of Shoji.

Because Shoji clearly teaches a base period of "T", a first parameter of "TF", and a length of the first pulse of "1.5T", all of which is illustrated in Fig. 20, applicant strongly asserts that Shoji does not teach "a length of the first pulse of the write time waveform is equal to a length of twice the base period subtracting the chosen first parameter" as

disclosed in the limitation of claim 5. This is because 2T-TF≠1.5T, given that the amount to the right of the first pulse, the first pulse (1.5T), and the first parameter (TF) are fully contained within a length of twice the base period (2T), as verified in Fig. 20 of Shoji.

In fact, for Shoji to achieve a length of the first pulse of 1.5T, the first parameter (TF) and the amount to the right of the first pulse must both be subtracted from twice the base period (2T). Therefore, applicant asserts that it is not obvious to combine the teachings of Shoji in view of Iwasa, Ogawa and Furumiya to arrive at the limitation disclosed in claim 5 of the present invention, as Shoji does not teach "a length of the first pulse of the write time waveform is equal to a length of twice the base period subtracting the chosen first parameter".

For at least the above mentioned reasons, applicant asserts that it is not obvious to combine the teachings of Shoji with the teachings of Iwasa, Ogawa, and Furumiya to arrive at the disclosed limitations of claims 4-5. Applicant respectfully requests reconsideration for the allowance of claims 4-5.

Claims 6-8 and 12 are rejected under 35 U.S.C 103(a) as being unpatentable over Iwasa in view of Ogawa as applied to claim 2 above, and in further view of Shoji

Regarding claim 6, applicant asserts that Shoji does not teach "a length between leading edges of any two consecutive pulses among all but the first and the last pulses being equal to twice the length of the base period" as disclosed in the limitation for claim 6. The Examiner has provided Fig. 3 of Shoji as a reference, which illustrates various pulse signals of different lengths (3T-11T). However, Fig.3 does not provide any scale, axis, or frame of reference to precisely verify lengths between edges of the above pulses to be equal to twice the base period as disclosed in claim 6. Applicant asserts that the provided reference of Fig. 3 by the Examiner is insufficient to teach the limitation of claim 6, as it is void of any scale or axis to provide an acceptable tolerance.

Additionally, should a common base period of 1T be assumed, the 6T pulse signal in Fig.3 illustrates a length between leading edges of two consecutive pulses as 1T (0.5T+0.5T), and not that equal to twice the length of the base period (2T) as disclosed in the limitation for claim 6.

Therefore, given the above rationale, applicant asserts that it is not obvious to combine this teaching with the previously stated references to arrive at the limitation of claim 6. Reconsideration of claim 6 is respectfully requested.

Regarding claims 7-8, applicant points out that these claims are dependant upon claim 6. Should an allowance be made for claim 6 in view of the above remarks, applicant asserts that claims 7-8 should be found allowable as being dependant on claim 6.

Regarding claim 12, applicant points out that this claim is dependant upon claim 2. Should an allowance be made for claim 2 in view of the above remarks, applicant asserts that claim 12 should be found allowable as being dependant on claim 2.

Claim 9 is rejected under 35 U.S.C 103(a) as being unpatentable over Iwasa in view of Ogawa as applied to claim 2 above, and in further view of Shoji and Nakajo (US 6,781,937)

Applicant points out that the Examiner has not provided a reference for Iwasa in view of Ogawa for teaching choosing the third, fourth, and fifth parameters according to waveform lengths of the current pit section and the next land section.

Additionally, applicant points out that claim 9 is dependant upon claim 2. Should an allowance be made for claim 2, applicant asserts that claim 9 should be found allowable as being dependant on claim 2.

Claim 10 is rejected under 35 U.S.C 103(a) as being unpatentable over Iwasa in view of Ogawa, Shoji, Nakajo as applied to claim 9 above, and in further view of Nobukuni (US 6,411,579)

Regarding claim 10, applicant points out that claim 10 is dependant upon claim 9. Should an allowance be made for claim 9, applicant asserts that claim 10 should be found allowable as being dependant on claim 9.

Claim 13 is rejected under 35 U.S.C 103(a) as being unpatentable over Iwasa in view of Ogawa, Furumiy as applied to claim 3 above, and in further view of Fuji (US 5,537,381)

Regarding claim 13, applicant points out that claim 13 is dependant upon claim 2. Should an allowance be made for claim 2, applicant asserts that claim 13 should be found

allowable as being dependant on claim 2.

Claim 19 is rejected under 35 U.S.C 103(a) as being unpatentable over Iwasa in as applied to claim 1 above, and in further view of Hayashi (US 5,606,540)

Regarding claim 19, applicant points out that claim 19 is dependant upon claim 1. Should an allowance be made for claim 1, applicant asserts that claim 19 should be found allowable as being dependant on claim 1.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Sincerely yours,

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